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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,582	11/24/2003	Yakov E. Kutsovsky	02019CON	5049

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EXAMINER	
WARTALOWICZ, PAUL A	
ART UNIT	**PAPER NUMBER**
1754	

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06/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/720,582	KUTSOVSKY, YAKOV E.	
	Examiner	Art Unit	
	Paul A. Wartalowicz	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 7-10, 13-14, 17-18, 20, and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohr et al. (5340560) in view of any one of Hawtof et al. (6565823), Blackwell et al. (6312656), or Pearson et al. (4857076).

Rohr et al. teaches a method of making fumed silica which includes feeding a silicon precursor material and oxygen and hydrogen into a combustion chamber

(Column 2, lines 10-27). Rohr et al. teaches that the precursor may be silanes or organosilanes (Column 2, lines 27-33). Rohr et al. teaches the use of pre-heated air (Column 3, line 29) and also that air is used to quench (Column 3, lines 40-41).

With respect to claims 25-30, the product claimed therein appears to be met by the teachings of Rohr et al. because Rohr et al. teaches the claimed process and therefore would appear to inherently teach the product that results from that process. The product of Rohr et al. would appear to inherently meet the claims regardless of whether the specific formula disclosed is taught by the reference.

Rohr et al. fail to teach providing a stream of a combustion gas having a linear velocity that atomizes and combusts or pyrolyzes the liquid feedstock.

However, Hawtof et al. teach a method for making silica (abstract) comprising atomizing the siloxane feedstock with kinetic energy of a flowing gas stream of nitrogen and oxygen at a high velocity (col. 8, col. 10).

Blackwell et al. teach a method for making silica (abstract) comprising atomizing liquid siloxane feedstock with high velocity nitrogen and oxygen gas stream (col. 9, 11, 12).

Pearson et al. teach a burner nozzle for admixing a slurry and an oxygen containing gas (col. 1) comprising an admixture to be reacted at a sonic velocity for the purpose of atomizing the admixture (col. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a gas stream of high velocity to atomize the precursor in Rohr as the advantages of a high velocity stream in contact with a feed

stream to atomize the feed stream are well known in the art as taught by any one of Hawtof et al. (col. 8, col. 10), Blackwell et al. (col. 9, 11, 12), and Pearson et al. (col. 2).

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohr et al. (5340560) in view of Lewis et al. (5075090) and any one of Hawtof et al. (6565823), Blackwell et al. (6312656), or Pearson et al. (4857076).

Rohr teach a method of making fumed silica as described above in claim 1.

Rohr fails to teach the claimed precursors of claims 11 and 12.

Lewis et al. teaches a process of preparing a metal oxide by introducing a precursor which can be mixed with a carrier into a combustion zone and combusting in support of a gas to produce the particles (see abstract). In particular, Lewis et al. teaches that the preferred precursor materials are organometallic compounds wherein the R groups are alkyl, alkoxide, or mixed alkyl or alkoxide and especially those with 1-6 carbons (Column 3, lines 7-23), and further teaches specifically that dimethyldimethoxysilane can be used and that it can be used in conjunction with aluminum triethyl (see Example 5 in Column 7). The disclosure of Lewis et al. makes numerous references to the use of aluminum triethyl and combined with the general teachings wherein the R groups of the precursors especially have 1-6 carbons, it would appear that this teachings is sufficient to anticipate at least the claimed precursor trimethyl aluminum since trimethyl aluminum is just the lower adjacent homolog of triethyl aluminum. However, should this teaching not be sufficient to anticipate the

claims limitations, the claimed precursors would at least be obvious in view of the above cited teachings of which organometallic precursors are preferred.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the precursor trimethyl aluminum in Rohr et al. because Lewis et al. and Rohr et al. are drawn to substantially similar methods of making metal oxides and the precursor triethyl aluminum is clearly suggested by the teachings of Lewis et al.

Claims 1-6 and 13-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al. (6887566) in view of any one of Hawtof et al. (6565823), Blackwell et al. (6312656), or Pearson et al. (4857076).

Hung et al. teaches (Column 2, lines 7-53 generally) the production of metal oxide (ceria) by atomizing a ceria precursor which may be mixed with an alcohol (Column 2, lines 55-59) into a high temperature reaction zone such as a flame which can be made from a mix of fuel such as hydrogen or methane and oxidant such as air or oxygen (Columns 3-4, lines 66-14) to form the metal oxide particles (see also Column 4, lines 47-55) and that the product can be quenched with a cooling gas, atomizing liquid, or through cooling tubes (Column 5, lines 6-10). Hung et al. also teaches that any of several well-known atomizing means can be used at various locations (Columns 3-4, lines 49-17).

Hung et al. fail to teach providing a stream of a combustion gas having a linear velocity that atomizes and combusts or pyrolyzes the liquid feedstock.

However, Hawtof et al. teach a method for making silica (abstract) comprising atomizing the siloxane feedstock with kinetic energy of a flowing gas stream of nitrogen and oxygen at a high velocity (col. 8, col. 10).

Blackwell et al. teach a method for making silica (abstract) comprising atomizing liquid siloxane feedstock with high velocity nitrogen and oxygen gas stream (col. 9, 11, 12).

Pearson et al. teach a burner nozzle for admixing a slurry and an oxygen containing gas (col. 1) comprising an admixture to be reacted at a sonic velocity for the purpose of atomizing the admixture (col. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a gas stream of high velocity to atomize the precursor in Hung et al. as the advantages of a high velocity stream in contact with a feed stream to atomize the feed stream are well known in the art as taught by any one of Hawtof et al. (col. 8, col. 10), Blackwell et al. (col. 9, 11, 12), and Pearson et al. (col. 2).

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hung et al. (6887566) in view of Lewis et al. (U.S. 5075090) and any one of Hawtof et al. (6565823), Blackwell et al. (6312656), or Pearson et al. (4857076).

Hung et al. teach the production of metal oxide as described above in claim 1.

Hung et al. fail to teach the claimed precursors of claims 11 and 12.

Lewis et al. teaches a process of preparing a metal oxide by introducing a precursor which can be mixed with a carrier into a combustion zone and combusting in support of a gas to produce the particles (see abstract). In particular, Lewis et al. teaches that the preferred precursor materials are organometallic compounds wherein the R groups are alkyl, alkoxide, or mixed alkyl or alkoxide and especially those with 1-6 carbons (Column 3, lines 7-23), and further teaches specifically that dimethyldimethoxysilane can be used and that it can be used in conjunction with aluminum triethyl (see Example 5 in Column 7). The disclosure of Lewis et al. makes numerous references to the use of aluminum triethyl and combined with the general teachings wherein the R groups of the precursors especially have 1-6 carbons, it would appear that this teachings is sufficient to anticipate at least the claimed precursor trimethyl aluminum since trimethyl aluminum is just the lower adjacent homolog of triethyl aluminum. However, should this teaching not be sufficient to anticipate the claims limitations, the claimed precursors would at least be obvious in view of the above cited teachings of which organometallic precursors are preferred.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the precursor trimethyl aluminum in Hung et al. because Lewis et al. and Hung et al. are drawn to substantially similar methods of making metal oxides and the precursor triethyl aluminum is clearly suggested by the teachings of Lewis et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz
June 19, 2007

Steven Bos
Primary Examiner
A.U. 1754